

are installed, the one that is on-line and processing data. { 'ak-tiv kəm'pyūd-ər }

**active controls technology** [AERO ENG] The development of special forms of augmentation systems to stabilize airplane configurations and to limit, or tailor, the design loads that the airplane structure must support. { 'ak-tiv kən'trōlz ,tek'nāl-ə-jē }

**active-cord mechanism** [MECH ENG] A slender, chainlike grouping of joints and links that makes active and flexible winding motions under the control of actuators attached along its body. { 'ak-tiv ,kōrd 'mek-ə-niz-əm }

**active current** [ELEC] The component of an electric current in a branch of an alternating-current circuit that is in phase with the voltage. Also known as watt current. { 'ak-tiv 'kə-rənt }

**active detection system** [ENG] A guidance system which emits energy as a means of detection; for example, sonar and radar. { 'ak-tiv di'tek-shən ,sist-əm }

**active device** [ELECTR] A component, such as an electron tube or transistor, that is capable of amplifying the current or voltage in a circuit. { 'ak-tiv di'vīs }

**active door** See active leaf. { 'ak-tiv 'dōr }

**active earth pressure** [CIV ENG] The horizontal pressure that an earth mass exerts on a wall. { 'ak-tiv 'ə-rth 'presh-ər }

**active electric network** [ELEC] Electric network containing one or more sources of energy. { 'ak-tiv ə'lek-trik 'net,wərk }

**active electronic countermeasures** [ELECTR] The major subdivision of electronic countermeasures that concerns electronic jamming and electronic deceptions. { 'ak-tiv ə'lek'trɒn-ik 'kaunt-ər,mez-ərz }

**active element** [ELECTR] Any generator of voltage or current in an impedance network. Also known as active component. [NUC PHYS] A chemical element which has one or more radioactive isotopes. { 'ak-tiv 'el-ə-mənt }

**active entry** [MIN ENG] An entry in which coal is being mined from a portion or from connected sections. { 'ak-tiv 'en-trē }

**active file** [COMPUT SCI] A collection of records that is currently being used or is available for use. { 'ak-tiv 'fil }

**active filter** [ELECTR] A filter that uses an amplifier with conventional passive filter elements to provide a desired fixed or tunable pass or rejection characteristic. { 'ak-tiv 'fīlt-ər }

**active front** [METEOROL] A front, or portion thereof, which produces appreciable cloudiness and, usually, precipitation. { 'ak-tiv frənt }

**active galaxy** [ASTRON] A galaxy whose central region exhibits strong emission activity, from radio to x-ray frequencies, probably as a result of gravitational collapse; this category includes M82 galaxies, Seyfert galaxies, N galaxies, and possibly quasars. { 'ak-tiv 'gal-əks-ē }

**active glacier** [HYD] A glacier in which some of the ice is flowing. { 'ak-tiv 'glā-shər }

**active homing** [NAV] 1. The homing of an aerodynamic missile by radar, in which radio signals are transmitted from the missile to the target and reflected to the missile to direct it toward the target. 2. Homing in which the homing device on the missile reveals the presence of the missile to the target. { 'ak-tiv 'hōm-ɪŋ }

**active illumination** [ENG] Lighting whose direction, intensity, and pattern are controlled by commands or signals. { 'ak-tiv ə'lūm-ə'nā-shən }

**active immunity** [IMMUNOL] Disease resistance in an individual due to antibody production after exposure to a microbial antigen following disease, inapparent infection, or inoculation. { 'ak-tiv im'yū-nat-ē }

**active infrared detection system** [ENG] An infrared detection system in which a beam of infrared rays is transmitted toward possible targets, and rays reflected from a target are detected. { 'ak-tiv 'in-frə-red di'tek-shən ,sist-əm }

**active jamming** See jamming. { 'ak-tiv 'jam-ɪŋ }

**active layer** [GEOL] That part of the soil which is within the suprapermfrost layer and which usually freezes in winter and thaws in summer. Also known as frost zone. { 'ak-tiv 'lā-ər }

**active leaf** [BUILD] In a door with two leaves, the leaf which carries the latching or locking mechanism. Also known as active door. { 'ak-tiv 'lēf }

**active leg** [ELECTR] An electrical element within a transducer which changes its electrical characteristics as a function of the application of a stimulus. { 'ak-tiv 'leg }

**active location system** [NAV] A navigation system in which the navigation satellite interrogates the craft, and the craft re-

sponds; useful for surveillance by a ground station, or for automated navigation if the satellite subsequently transmits data. { 'ak-tiv lō'kā-shən ,sist-əm }

**active logic** [ELECTR] Logic that incorporates active components which provide such functions as level restoration, pulse shaping, pulse inversion, and power gain. { 'ak-tiv 'lāj-ik }

**active margin** [GEOL] A continental margin that is characterized by earthquakes, volcanic activity, and orogeny resulting from movement of tectonic plates. { 'ak-tiv 'mār-jən }

**active master file** [COMPUT SCI] A relatively active computer master file, as determined by usage data. { 'ak-tiv 'mas-tər 'fil }

**active master item** [COMPUT SCI] A relatively active item in a computer master file, as determined by usage data. { 'ak-tiv 'mas-tər 'fīt-əm }

**active material** [ELEC] 1. A fluorescent material used in screens for cathode-ray tubes. 2. An energy-storing material, such as lead oxide, used in the plates of a storage battery. 3. A material, such as the iron of a core or the copper of a winding, that is involved in energy conversion in a circuit. 4. In a battery, the chemically reactive material in either of the electrodes that participates in the charge and discharge reactions. [ELECTR] The material of the cathode of an electron tube that emits electrons when heated. [NUCLEO] A material capable of releasing substantial quantities of nuclear energy during fission. { 'ak-tiv mət'iir-ē-əl }

**active mirror** [OPTICS] A mirror whose position and shape are continually adjusted in response to changing environmental conditions in order to obtain optimum performance. { 'ak-tiv 'mī-rər }

**active permafrost** [GEOL] Permanently frozen ground (permafrost) which, after thawing by artificial or unusual natural means, reverts to permafrost under normal climatic conditions. { 'ak-tiv 'pərmə-frōst }

**active power** [ELEC] The product of the voltage across a branch of an alternating-current circuit and the component of the electric current that is in phase with the voltage. { 'ak-tiv 'pau-ər }

**active prominence** [ASTRON] A classification of prominences of the sun; such a prominence is rapidly moving, and is the most frequent type. { 'ak-tiv 'prəm-ə-nəns }

**active prominence region** [ASTRON] Portions of the solar limb that display active prominences, characterized by down-flowing knots and streamers, sprays, frequent surges, and curved loops. Abbreviated APR. { 'ak-tiv 'prəm-ə-nəns ,rē-jən }

**active region** [ASTRON] A localized, transient, nonuniform region on the sun's surface, penetrating well down into the lower chromosphere. [ELECTR] The region in which amplifying, rectifying, light emitting, or other dynamic action occurs in a semiconductor device. { 'ak-tiv 'rē-jən }

**active satellite** [AERO ENG] A satellite which transmits a signal. { 'ak-tiv 'sād-ə-līt }

**active site** [CHEM] The effective site at which a given heterogeneous catalytic reaction can take place. Also known as active center. [MOL BIO] The region of an enzyme molecule at which binding with the substrate occurs. Also known as binding site; catalytic site. { 'ak-tiv 'sīt }

**active sludge** [CIV ENG] A sludge rich in destructive bacteria used to break down raw sewage. { 'ak-tiv 'sləj }

**active solar system** [MECH ENG] A solar heating or cooling system that operates by mechanical means, such as motors, pumps, or valves. { 'ak-tiv 'sō-lər ,sist-əm }

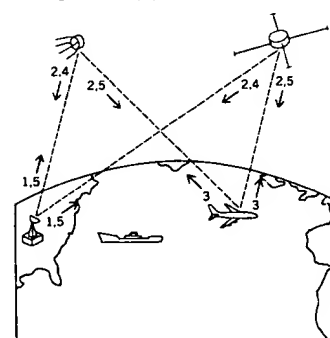
**active solid** [CHEM] A porous solid possessing adsorptive properties and used for chromatographic separations. { 'ak-tiv 'sāl-əd }

**active sonar** [ENG] A system consisting of one or more transducers to send and receive sound, equipment for the generation and detection of the electrical impulses to and from the transducer, and a display or recorder system for the observation of the received signals. { 'ak-tiv 'sō-nər }

**active sound cancellation** [ACOUS] Any technique in which a control sound source creates sound in a selected region equal in amplitude and opposite in phase to sound that would otherwise exist, but this sound cancellation cannot be maintained in the presence of system changes unless there is also a feedback mechanism. { 'ak-tiv 'saund ,kən-səl-ā-shən }

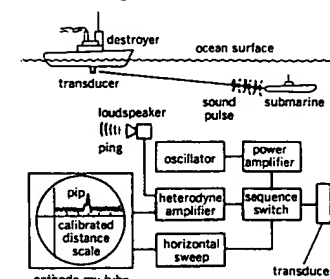
**active sound control** [ACOUS] Any modification of sound fields by loudspeakers, controlled, for example, through the use

## ACTIVE LOCATION SYSTEM



Sequence of events in active location procedure for traffic control showing the relay of questions and answers between the plane, the satellites, and the ground station.

## ACTIVE SONAR



Active sonar system. (From H. F. Olson, *Acoustical Engineering*, 3d ed., Van Nostrand, 1957)

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**Sybil P. Parker**  
Editor in Chief

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On the cover: Photomicrograph of crystals of vitamin B<sub>12</sub>.  
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